

Mathematics Question Paper

Class: 10

Date: _____

Instructions

- All questions are compulsory.
- Show all your workings clearly.
- Use a separate sheet for rough work if necessary.

Section A: Algebra (20 marks)

1. Solve the quadratic equation:

$$2x^2 - 4x - 6 = 0$$

2. Factorize the following expression:

$$x^2 - 5x + 6$$

3. If $a + b = 10$ and $ab = 21$, find the values of a and b .

4. Simplify the expression:

$$\frac{3x^2 - 12}{3x}$$

Section B: Geometry (20 marks)

1. Calculate the area of a triangle with base 10 cm and height 6 cm.
2. The circumference of a circle is 31.4 cm. Find the radius of the circle.
3. Prove that the sum of the angles in a triangle is 180° .
4. A rectangle has a length of 8 cm and a width of 5 cm. Calculate its perimeter.

Section C: Trigonometry (20 marks)

1. If $\sin \theta = \frac{3}{5}$, find $\cos \theta$ and $\tan \theta$.

2. Prove the identity:

$$\tan^2 \theta + 1 = \sec^2 \theta$$

3. Find the value of $\sin 30^\circ + \cos 60^\circ$.

4. Solve for x :

$$2 \sin x = \sqrt{3} \quad \text{for } 0^\circ \leq x < 360^\circ$$

Section D: Statistics (20 marks)

1. Find the mean of the following data set:

4, 8, 6, 5, 3, 9

2. Calculate the median of the data set:

12, 15, 11, 14, 10

3. What is the mode of the following numbers?

2, 3, 4, 2, 5, 3, 2

4. A survey of the number of books read by students in a month resulted in the following data:

1, 2, 2, 3, 4, 5, 5, 5, 6

Calculate the range of the data.

End of Question Paper